## Agenda Item 25 – Attachment A

### ENVIRONMENTAL PARAMETERS FOR COLLECTIONS - A SUMMARY OF THE STATE OF PLAY

#### FOR DISCUSSION

## Introduction

The sum total of the sources of risk to the loss or damage to (physical) collections is articulated in the ten "Agents of Deterioration":

AGENTS OF DETERIORATION FOR COLLECTIONS				
1. Physical Forces	2. Fire	3. Water		
4. Criminal Activity	5. Pests	6. Contaminants		
7. Radiation	8. Incorrect	9. Incorrect Relative		
	Temperature	Humidity		
10. Dissociation (the absence of collection documentation, or the severance between				
collection documentation and the collection)				

Over the past ten years there has been a massive upsurge in research and discussion around the orthodox international temperature and relative humidity (rh) standards established for most types of collections in the 1970s: 21DegC +/- 2DegC and 50%RH +/- 5%. This has occurred for a number of reasons including:

- Recognition that some of the preservation science is more uncertain or problematic than has been previously thought;
- Recognition that some major international collecting institutions apply different, even mutually irreconcilable, standards, especially when lending objects, and may not themselves meet those same standards
- Recognition by museum managers that it takes significant investment of resources to sustain strict environmental parameters for collections, resulting in both high energy bills and a disproportionate contribution to the carbon footprint – this translates into a desire to establish a more <u>sustainable</u> footing for the preservation of collections into the future, in every sense of the word.

#### Current Research and Debate

The international collection preservation community, with the growing involvement of the cultural facilities management and engineering communities, is undertaking a growing amount of research and discussion about the impact of particular temperature and rh environments on collections, with research centred on the following areas and their interactions:

- Collections and their behaviour
- Mechanical systems and their capabilities
- > Buildings and their characteristics, including their thermal mass
- Outdoor climates

Some of this research involves the use of increasingly sophisticated analysis, including use of computer-simulation models, as it's about prediction. Research results are being shared in a growing number of specially-dedicated forums, particularly in Europe and north America, which reveal it as a

dynamic area of innovative research where there remains quite a significant amount of scientific uncertainty and disagreement within the international preservation profession.

## Key concepts

- Some collection materials have very particular and specific environmental requirements which differ from the requirements of most collection types
- > Each building and storage space will behave in specific and markedly different ways
- Northern hemisphere climate research can't necessarily be translated directly to Australian conditions
- "Tolerable ranges" concept
- "Proofed fluctuation" concept "the largest RH or T to which an object has been exposed to in the past"
- "Acceptable loss" concept
- "Tolerable damage" concept
- Rate of shift/fluctuation
- Micro and intermediate storage systems can also be used to 'hold' and provide a buffer from temperature and relative humidity fluctuations
- Move towards evidence-based and risk analysis, 'appetite" and management approaches rather than rules-based approach

# (Some) Main Contemporary Standards

STANDARD	THRUST	COMMENT
British Publicly Available	Code of Practice on collection	
Specification 198 (PAS 198) 2011	environmental guidelines	
American Society for Heating	Offers grades of control from	Regarded as a key document
Refrigeration Air-conditioning	AA to D	in the debate
Engineers (ASHRAE) – Chapter 23		
Museums, Galleries, Archives and		
Libraries 2011		
Bizot Group (International Group of	Want redefinition of	Causing 'major concern'
Organizers of Large Scale	internationally accepted	amongst collection
Exhibitions)	museum conditions	preservationists
European Standard for Conservation	Specifications for	
of Cultural Property (EN 15757),	temperature and rh	
2010		
British Standards Institute Guide for		
Storage and Exhibition of Archival		
Materials (PD 5454), 2012		
Regional and Public Galleries of	Parameters for temperature,	
NSW 2011	rh and lighting	

Main Types of Initiatives to Save Energy

INITIATIVE	(SOME) EXAMPLES OF	COMMENTS
	INSTITUTIONS	
Passive energy or green buildings	National Archives of	
with significant thermal mass	Australia	
	Science Museum London	
Widening the acceptable parameters,	Museum Victoria	Some major institutions
including seasonal drift (and	State Library of Victoria	have reviewed their
adjusting HVAC)	Australian War Memorial	parameters and tightened
		them – eg. National Gallery,
		London
Getting more efficient plant	Museum Victoria	
	(forthcoming)	
	Art Gallery of South Australia	
	National Archives Kew, UK	
Turning HVAC off <u>OR</u> putting it on	Museum Victoria	
stand-by <u>OR</u> no climate control	National Gallery of Victoria	
	National Library of Australia	
	State Library of Victoria	
	Australian Museum	
	Victoria and Albert Museum	

## Cautions and Notes

- The research and debates in the international preservation community can be complex and difficult for non-experts to decipher
- The overriding desire for energy savings means that to some extent the baby risks being thrown out with the bath-water. Because some of the science has been questioned recently, some, especially outside the profession, may try to use that as an opportunity to throw the whole collection preservation science field out
- Some institutions are getting significant energy savings from modifying their lighting technology – for some institutions this is the main thrust of their sustainability initiatives

## Recommendation for a CAMD-sponsored Australasian Forum

- Involve a number of Australasian institutions that are doing a number of different things
- Make it multi-disciplinary (overriding emphasis of a recent Smithsonian forum on Museum Preservation Environments was the need for "key collaborations" among collections and facilities management staff)
- The ICOM-CC Conference is in Melbourne in 15-19 September 2014. An adjacent forum may present an opportunity to involve some of the international "big names" in this area

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